AI-POWERED UNMANNED DRONES: A LEGAL ANALYSIS OF THE LIABILITY CHALLENGE FOR HOMICIDE

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ABSTRACT

This article examines the complex legal challenges involved in attributing Legal Liability for Homicide and Deaths Caused by AI-Powered Unmanned Drones in Saudi Arabia, Egypt, and the United Arab Emirates. The legal frameworks for preventing such homicides rest on a dual-track approach. The first track is preventive and regulatory, embodied in civil-aviation rules that criminalize the unauthorized operation of unmanned aircraft. The second track is punitive and deterrent, reflected in counter-terrorism legislation that prescribes severe penalties for drone-related terrorist offences. The review of existing legislation also reveals a notable absence of explicit statutory provisions that criminalize the use of artificial intelligence in conducting such killings. This article adopts a normative legal and comparative research approach, grounded in primary and secondary legal sources, to examine legal liability for remote killings using AI-powered unmanned drones. It undertakes a comparative analysis of legislation and regulations in the selected Arab states. The article examines relevant legal principles to determine criminal liability and allocate responsibility among the various actors involved. This article establishes a theoretical framework examining the concept of drones, the capabilities and consequences of AI-powered systems, and their use in homicides. It then addresses criminal liability by analysing the material and mental elements of the offense through illustrative examples. Finally, the paper reviews the legal frameworks for preventing in the selected Arab states.

1. INTRODUCTION

The world where algorithms determine the fate of soldiers and civilians alike is no longer hypothetical. AI-powered drones are reshaping modern warfare, raising profound ethical questions about 'automation' in conflicts. Previously exclusive to nations capable of affording drones, Ukraine has demonstrated that with a little ingenuity, low-cost drones can be modified to devastating effect. Human Rights Watch, an international non-governmental human rights organization, stated that the use of autonomous weapons would be the latest and most dangerous example of 'digital dehumanization,' where AI makes a range of decisions affecting human lives, such as policing, law enforcement, and border control(UN News, 2025).

In recent years, the use of drones has expanded across various sectors. According to the official statistics published by the Federal Aviation Administration (FAA) Unmanned Aircraft Systems (UAS) Division, a total of 822,039 drones were registered in the United States as of July 2025(Federal Aviation Administration, 2025).

AI-powered unmanned drones have emerged as highly versatile tools, serving a wide range of purposes across both peaceful and military contexts. States and armed groups are increasingly competing to acquire and develop this technology. However, this growing importance-intertwined with substantial risks-has been further amplified by the integration of artificial intelligence into unmanned drones. As the potential benefits expand, so too do the associated dangers, underscoring the urgent need to establish comprehensive and robust legal frameworks to regulate such practices(Mumm & Lonstein, 2022).

This article aims to provide a legal and analysis of the Legal Liability for Homicide and Deaths Committed by AI-Powered Unmanned Drones. Ensuring accountability is essential both to secure justice for victims and to protect human rights against the risks posed by emerging autonomous weapons technologies (Kotimäki, 2020).

Following this objective, addressing the issue requires a careful, fact-based analysis to determine criminal liability. Accordingly, this article examines several key aspects: the concept and classification of drones; the role of artificial intelligence technologies in AI-powered drone operations and their implications for legal liability; the criminal liability for homicide committed by AI-powered unmanned drones; and the legal frameworks for preventing homicide committed through AI-powered unmanned drones in Saudi Arabia, Egypt, and the United Arab Emirates.

The significance of this article lies in its focus on the increasing use of artificial intelligence in homicide and deaths caused by AI-powered unmanned drones and the resulting challenges to establishing legal liability, particularly where human actors and autonomous systems intersect(Rosen, 2014).

2. METHODOLOGY AND PLAN

This article adopts a normative legal research approach(Awwad & Abdelsattar, 2025), grounded in primary legal sources, regulations relevant to Legal Liability for remote killings carried out using AI-powered unmanned drones. Complementing the doctrinal analysis, the article applies a comparative method focusing on Egypt, Saudi Arabia, and the United Arab Emirates.

Types of data: The types of data utilized in this article are: Primary data: statutory and regulatory texts and, where accessible, reported case law and official guidance from Saudi Arabia, Egypt, and the United Arab Emirates; Secondary data: academic monographs, legal treatises, and peer-reviewed journals addressing criminal liability, artificial intelligence, autonomous systems, and drone regulation.

Data collection draws on a range of written sources-statutory instruments, regulatory provisions, explanatory memoranda, legal doctrines, and prior scholarship pertinent to the subject. In addition, this article will: (a) conduct an extensive review of scholarly literature in law and technology ethics on the liability of autonomous systems to synthesize conceptual foundations; (b) undertake a comparative analysis of legislation, regulations, and judicial precedents concerning the use of drones in jurisdictions such as Egypt, Saudi Arabia, and the United Arab Emirates; (c) examine relevant legal principles in major statutes and general precedents to determine criminal liability and the allocation of responsibility among terrorists, operators, programmers, manufacturers, and other actors who decide on and direct the use of drones towards specific targets to kill innocent individuals.

This article is structured in four main sections. The first provides an introduction, followed by the second, which outlines the methodology and research plan. The third section establishes the theoretical framework, examining the concept and types of drones, the capabilities and consequences of AI-powered systems, and case examples of their use in homicides. The fourth section addresses criminal liability for homicides committed by AI-powered

unmanned drones, analyzing the material and mental elements of the offense through illustrative examples. This section also reviews the legal frameworks for preventing such acts in selected Arab states. The paper concludes with a summary of the findings.

3. THEORETICAL FRAMEWORK

3.1. Concept Of Drones

Drones, also referred to as Unmanned Aerial Vehicles (UAVs), are small- to medium-sized aircraft designed to operate without an onboard human pilot. These systems can either be remotely controlled or operate autonomously, showcasing their capacity to maintain stable flight under diverse environmental conditions. Modern drones are integrated with advanced technologies, including GPS navigation, radar-based control systems, infrared sensors, and high-resolution imaging capabilities, which collectively enhance their precision and enable them to execute a wide range of missions with high efficiency (Ed.daran et al., 2025).

Egyptian Law No. 216 of 2017 defined "automatically or wirelessly propelled aircraft" as any object capable of flight without a pilot that operates without direct human contact for control, by means of any type of technology, regardless of its shape or size. Such an object may be loaded with additional payloads-whether devices, equipment, weapon systems, munitions, explosives, or other items-that constitute a threat to the national security of the state, and is operated or controlled remotely (Egypt, 2017)

For its part, the General Authority of Civil Aviation of Saudi Arabia (GACA) has defined autonomous aircraft as: "Autonomous aircraft means a UA that does not allow pilot intervention in the management of the flight (GACA, 2016).

The United Arab Emirates (UAE) legislature defines an "unmanned aircraft" as any machine, vehicle, or similar object capable of flight without a pilot on board and controlled either remotely or autonomously. Its control systems are regarded as integral components, and the definition applies to platforms intended for civil purposes (UAE, 2022).

Unmanned aerial systems have a long history. Although their contemporary prominence is often associated with recent conflicts, precursors to unmanned aerial devices date back to 1849, when unmanned explosive balloons were launched against Venice(Dailey, 2017). The term "unmanned aircraft" later entered the international legal vocabulary: Article 8 of the Convention on International Civil Aviation (Chicago Convention, 7 December 1944)

addresses the rule that unmanned aircraft may not fly over a contracting State without special authorization, reflecting early concerns about control and safety in shared airspace(Al-Shazly, 2023).

From a legal and security perspective, unmanned systems lower the threshold for conducting lethal operations without exposing personnel to direct risk, which explains states' strong interest in acquiring and developing this technology. Decision-makers and military authorities have accordingly debated the scope of lawful targeting, the standards for identification of legitimate targets, and the circumstances that might justify the use of force. For instance, the United States has cited self-defence and its involvement in armed conflict against Al-Qaeda to justify certain strikes involving unmanned aircraft; one widely reported instance involved a strike in Yemen in 2002 that targeted a vehicle on an external road(Mahmoud, 2019).

Drones may also be employed as weapons by state and non-state actors(Sadat, 2012). Their capacity to deliver munitions has been exploited in several reported attacks against civilians and critical infrastructure. Examples include Houthi forces launching a drone strike on a market in Sana'a in 2017, ISIS conducting a drone attack on a mosque in Afghanistan in 2018, and Al-Shabaab employing drones against an African Union military base in Somalia in 2019-incidents reported to have caused significant casualties. These events illustrate the weaponization of dual-use platforms and underscore the acute challenges they pose to Legal Liability for remote killings carried out using AI-powered unmanned drones(Zwijnenburg & Blok, 2016).

3.2. Types Of Drones

Drones appear in a variety of types and configurations; their size, design, and capabilities depend on their intended use(Gupta et al., 2013). UAVs are employed across a broad spectrum of applications, including aerial photography, surveillance and reconnaissance, environmental monitoring, search and rescue, military operations, delivery and transport, scientific research, and recreational activities(Dorum, 2016). Modern systems may also utilize artificial intelligence techniques to control navigation and execute mission tasks. The diversity of form and function has direct implications for Legal Liability, since classification affects the potential for weaponization, operational control, and attribution of responsibility.

3.2.1. Unmanned Aerial Vehicles (Uavs): Drones

- Surveillance UAVs: Designed to gather aerial

information and imagery; used for monitoring, reconnaissance and related military missions(Dyndal et al., 2017).

- Strategic Reconnaissance UAVs: Configured to collect intelligence over extended ranges and durations (Grzebyk, 2015).
- Attack UAVs: Equipped with weapon systems for striking targets; capable of carrying munitions (missiles, bombs) and advanced targeting sensors(Konert & Balcerzak, 2021).
- Multi-purpose Drones: Versatile platforms applicable in civilian and military domains, adaptable to payloads such as cameras, thermal sensors, and LiDAR for photography, inspection, monitoring, and search-and-rescue tasks(Heyns et al., 2016).
- Commercial Drones: Deployed in commercial sectors (e.g., real-estate imaging, advertising, goods delivery), increasingly engineered to support logistics and transport services(Barela, 2015).
- Specialized Drones: Purpose-built for scientific research, exploration, meteorological observation, and other niche missions.

3.2.2. Vertical Take-Off and Landing (VTOL) UAVs:

VTOL designs enable vertical take-off and landing as well as conventional cruise flight. Examples include: (Barnhart et al., 2012)

- Fixed-Wing Reconnaissance UAVs: used for reconnaissance missions and intelligence collection.
- Long-Endurance UAVs: designed to remain airborne for extended periods without the need to land.

3.2.3. Remote-Controlled UAVs:

- Radio-controlled aircraft: Typically used for training, recreation, and hobbyist activities.
- Mini UAVs: Small, lightweight platforms-quadcopters, small helicopters, or fixed-wing models-commonly employed for recreational or light commercial tasks. (Barnhart et al., 2012)

As the foregoing demonstrates, unmanned aerial systems combine endurance, reach, and access to hard-to-reach areas with flexible remote-control and autonomous options. These technical characteristics expand operational possibilities but also raise regulatory, operational, and criminal-law questions central to this article's examination of Legal Liability for remote killings carried out using AI-powered unmanned drones(Dyndal et al., 2017).

3.3. AI-Powered Drones: Capabilities And Consequences

Artificial intelligence (AI) refers to a collection of technologies that can enable a machine or system to sense, comprehend, act, and learn(SDAIA, 2023).

AI techniques significantly enhance drones' operational capabilities, but their deployment must be assessed against ethical and legal standards. In peaceful applications, AI-equipped unmanned aerial systems-integrating sensors such as thermal and spectral cameras, chemical detectors, and advanced imaging-provide high-quality data for environmental monitoring (forests, oceans, pollution), disaster response (fires, floods), border surveillance, and search-and-rescue operations(Sehrawat, 2017). In these contexts, AI improves situational awareness, speeds decision-making, and supports humanitarian and public-safety objectives (Archambault & Mâzouz, 2016).

Conversely, the same technologies may be repurposed for hostile ends. Drones fitted with visual-surveillance and remote-sensing systems are used for intelligence collection and military reconnaissance over sensitive areas. AI can analyze large datasets and detect patterns to identify and track potential targets automatically, enabling precision in timing and execution. Whether operated autonomously or under remote human control, such systems can be employed to carry out lethal strikes-often described as "drone strikes" or "remote killing"-by state or non-state actors. Algorithms that select targets, enable automatic tracking, or assist weapon guidance thus create clear risks of misuse(Aliane, 2025).

It follows that AI technologies play an expanding role in drone operations and present both opportunities and acute regulatory and ethical challenges, including those directly relevant to Legal Liability for Homicide and Deaths Caused by AI-Powered Unmanned Drones.

The impact of artificial intelligence technologies on AI-powered drone operations and their implications for legal liability can be summarized as follows:

a. Smart Targeting: AI technologies enable drones to identify targets with high accuracy through advanced sensors and computer vision systems, enhancing targeting precision and reducing the likelihood of operational errors.
b. Intelligent Decision-Making: AI empowers drones to make real-time, intelligent decisions, allowing them to adapt to dynamic situations during missions.

c. Drone Collaboration: AI allows multiple drones to communicate and coordinate with each other, increasing operational effectiveness and enabling them to perform complex, coordinated tasks.

d. Autonomous Flight: AI facilitates the development of autonomous flight capabilities, allowing drones to navigate intelligently, maintain stability, and avoid obstacles without direct human intervention.

e. Data Analysis: AI enables drones to process and analyze large volumes of environmental and operational data, supporting informed decision-making and precise mission execution.

3.4. Examples Of AI-Powered Drone Use In Homicide And Deaths

In May 2025, a report issued by the Independent International Commission of Inquiry on Ukraine concluded that the Russian armed forces had committed "crimes against humanity," specifically involving the killing of civilians using unmanned aerial vehicles (drones). The report clarified that since July 2024, Russian forces have repeatedly killed and injured civilians in an area within the Kherson region. Drone operators used real-time video footage transmitted by cameras integrated into the drones, deliberately focusing on clearly identifiable civilian targets before dropping explosives on them(OHCHR, 2025).

Francesca Albanese's report to the Human Rights Council documents Israel's deployment of advanced military technologies in the occupied Palestinian territories, notably Gaza. It states that prolonged occupation and repeated military campaigns have served as testing grounds for cutting-edge capabilities, including drones and artificial-intelligence–driven targeting tools, which the report describes as having been "omnipresent killing machines in the skies of Gaza" (A/HRC/59/23, n.d.)

In March 2020, a report by the United Nations Security Council's Panel of Experts on Libya documented the deployment of a Turkish-made STM Kargu-2 drone during a military operation. According to the report, the drone was used to "hunt down" and "engage" retreating forces and operated in a "fire, forget, and find" mode, meaning it did not require continuous human intervention to identify and track its targets(UN Digital Library, 2021). This autonomous target-selection and engagement capability is what makes its operation equivalent to technologies of artificial intelligence.

In August 2018, two GPS-guided drones laden with explosives were used in a failed attempt to assassinate Venezuelan President Maduro(The Guardian, 2018)

In January 2018, two Russian military bases in Syria -the Hmeimim Air Base and the Tartus naval facility- were attacked by a swarm of 13 homemade drones(Isachenkov, 2018).

On 26 October 2022 a drone crashed near a power station in the resort town of Nuweiba on the Red Sea coast of the Sinai Peninsula. The incident occurred only hours after a separate event in Taba, where the fall of a drone on a medical facility injured six people. The Egyptian army stated that "what happened in the cities of Taba and Nuweiba was caused by the fall of an unidentified unmanned aerial vehicle (UAV)," while some analyses suggested the drones originated in Yemen, reportedly from Houthi forces(MEO, 2023).

On 17 January 2022, the Houthi Ansar Allah movement in Yemen launched a terrorist attack targeting Dubai and Abu Dhabi airports, the Al-Mussafah oil refinery, and several other strategic and sensitive sites. Abu Dhabi authorities reported the explosion of three fuel transport tanks and a fire in a construction area near Abu Dhabi Airport, resulting in the deaths of three individuals and injuries to six others(Reuters, 2022). Subsequently, on 25 March 2022, the same Houthi movement carried out a terrorist attack targeting Aramco facilities in Jeddah and critical infrastructure in the Saudi capital, Riyadh, employing both cruise missiles and unmanned aerial vehicles (BBC, 2022).

Despite the strategic advantages afforded by unmanned Drones, their deployment frequently contravenes fundamental tenets of international humanitarian law (IHL). Consequently, states and armed groups conducting unmanned Drones operations bear accountability for resulting civilian casualties, notwithstanding that existing legal and regulatory frameworks are often inadequately. This underscores the imperative for establishing robust legal frameworks to ensure accountability for all responsible parties, whether states or armed groups. (Ed.daran et al., 2025)

This accountability deficit stems from three interconnected factors: the rapid pace of technological advancement, which consistently outpaces the evolution of legal norms and regulatory mechanisms; insufficient international oversight and limited transparency in Unmanned Drones operations, which impede effective monitoring and enforcement of IHL; and the absence of clear, uniform criteria for attributing responsibility when harm arises from autonomous or remotely operated

systems, thereby complicating determinations of liability and culpability.

To address this deficit, the international community should establish explicit regulatory frameworks that delineate accountability for IHL violations involving Unmanned Drones, institute robust oversight and reporting mechanisms to enhance transparency, and harmonize substantive and procedural rules to safeguard civilians.

4. RESULT AND DISCUSSION

4.1. *Criminal Liability For Homicide Committed By AI-Powered Unmanned Drones*

Islamic Sharia, along with other legal systems, places significant emphasis on protecting the human right to life. Within Islamic Sharia, this right is classified among the five essential necessities that must be preserved. It imposes penalties for violations, prescribing retribution (Qisas) as the punishment for intentional killing when the requisite conditions are satisfied. Allah Almighty says in the Holy Qur'an, in verse 179 of Surah Al-Baqarah: "And there is (a saving of) life for you in Al-Qisas (the Law of Equality in punishment), O men of understanding, that you may become Al-Muttaqûn." Similarly, in verse 45 of Surah Al-Ma'idah: "And We ordained therein for them: life for life, eye for eye, nose for nose, ear for ear, tooth for tooth, and wounds equal for equal."(The Noble Qur'an in the ENGLISH Language, n.d.)

Homicide is defined as the act of one human taking the life of another. It is a criminal act that violates the individual's right to life, a right fundamental to both individual and societal existence. For the individual, life represents the most precious value, instinctively protected. For society, it constitutes the basis of existence and a prerequisite for progress. The Egyptian Court of Cassation has affirmed that the crimes of intentional murder and attempted murder are legally distinguished from other crimes against the person by a specific intent: the intention to kill and take life(Egyptian Court of Cassation, 2018). So, a person is not criminally liable for an offence unless the constitutive elements of the offence are satisfied. The principal elements in criminal law are the material element (actus reus) and the mental element (mens rea).

4.1.1. *The Material Element (Actus Reus) Of The Crime Of Killing Using AI-Powered Unmanned Drones*

The material element (actus reus) of killing by drone is manifested in the physical conduct that causes the victim's death. Such conduct may consist of launching or directing a drone to strike a target by means of a missile, bomb, or any other instrumentality. In order for the material act that leads to the victim's death to be sufficient to establish the material element of the crime of murder, it must be the cause of death; there must exist a causal link between the act and the death. Where the act does not directly cause death but contributes indirectly, the material element is nonetheless satisfied if it is proven that the indirect act was sufficient to cause death, even in the absence of any other cause (Al-Shadhli, 2018). This analytical understanding of causation is central to the article's examination of Legal Liability for remote killings carried out using AI-powered unmanned drones. The material element can be analysed through three constituent components: conduct, Criminal Result, and the causal relationship.

Criminal Behavior: Criminal behavior in the offence of using a drone for murder denotes the perpetrator's conduct that leads to the victims' deaths. Such conduct may take the form of physical acts - for example, launching a missile or bomb from a drone toward the victims - or of command acts, such as ordering, authorizing, or directing the drone strike. For the offence to subsist, the victim must be a living human being (Al-Shadhli, 2018). The drone itself functions as the instrumental means of the offence: to qualify as such it must have been capable of inflicting lethal harm and been under the perpetrator's control or effective direction at the relevant time.

Criminal Result: The criminal result in the context of drone-enabled killing is the death of the victim. The material element is satisfied where the use of the drone leads to death.

The causal relationship: The causal relationship is defined as "the link between the perpetrator's behavior and the resulting consequences." Therefore, for all the material elements of the crime to be fulfilled, there must be a clear causal relationship between the criminal behaviour and the resulting consequences. If the causal relationship between the criminal behavior and the criminal consequences is absent, there can be no criminal liability for the accused. The causal relationship represents the direct connection between the criminal behavior -namely, the use of a drone to kill the victims- and the consequence, which is the death of the victims. This means that the act must have directly caused the death of the victims; and if the act had not occurred, the death would not have taken place(Al-Shadhli, 2006).

Furthermore, if the act leading to the victims' death is not a direct cause but rather an indirect one, this does not prevent the material element of the crime of murder from being established, provided it is proven that the indirect act was sufficient to cause the victims' death, even if there was no other contributing cause. The causal relationship is also not severed if other factors intervene between the perpetrator's act and the resulting consequence, contributing to the occurrence of death, as long as these intervening factors were foreseeable and familiar.

4.1.2. The Moral Element (Mens Rea) Of The Crime Of Killing Using AI-Powered Unmanned Drones

The criminal intent of a crime comprises two essential components: knowledge and will. For criminal intent to exist, the perpetrator must first have knowledge that their conduct could cause harm to another person. As for the will, it refers to the perpetrator's deliberate intention to commit the criminal act.

In the context of the crime of using a drone for murder, the moral element is represented by the perpetrator's criminal intent, which manifests in their intention to cause the victims' death. Criminal intent may take two forms: Direct intent, where the perpetrator explicitly aims to kill the victims; Indirect intent, where the perpetrator intends to cause harm to the victims, and such harm ultimately results in their death(Al-Shadhli, 2006).

4.1.3. Examples Illustrating The Application Of The Material And Mental Elements In Homicide Committed By AI-Powered Unmanned Drones

A person cannot be held criminally liable for an offense unless all of its constitutive elements are established, namely the material element and the mental element. In the context of criminal liability for homicide committed by AI-powered unmanned drones, both elements must be satisfied, as previously discussed. The use of AI-powered unmanned drones in lethal operations presents a particularly complex and sensitive legal challenge. Homicide committed through drones constitutes a form of targeted killing, where drones are deployed to eliminate specific human targets. In recent years, drones have played an increasingly significant role in targeted killing operations, being widely used by states in counter-terrorism measures. At the same time, terrorist groups have also employed drones to carry out attacks resulting in the deaths of innocent civilians as part of their violent strategies.

The following examples illustrate cases that may give rise to criminal liability for homicide committed through the use of AI-powered unmanned drones:

- Direct Death: Launching a drone at another person that directly results in their death constitutes a crime of killing using a drone. The physical element is fulfilled by the act of deploying the drone against the victim, while the moral element is satisfied by the perpetrator's intent to cause the victim's death.
- Death Resulting from Injury: When a drone is launched at a person causing severe injuries that subsequently lead to death, this also constitutes a crime of killing using a drone. The physical element is fulfilled through the act of launching the drone, and the moral element is satisfied by the perpetrator's intent to inflict harm that results in death.
- No Death: If a drone is launched at another person but no harm occurs, it does not constitute a crime of killing using a drone, as the physical element is absent. However, this does not preclude the application of attempted homicide if its other constitutive elements are satisfied, or relevant crimes related to terrorism and intimidation, depending on the applicable legal framework.

Traditional rules of criminal liability, in their current form, are insufficient for application to incidents involving unmanned aerial vehicles (drones). In the vast majority of cases, they fail to adequately address the legal challenges arising from such incidents, particularly concerning the relationship between the drone and the pilot, operator, or programmer; a matter that is increasingly difficult to justify given the rapid advancements in this field worldwide.

Crimes involving killings carried out by AI-powered unmanned drones represent a complex and pressing legal challenge. Traditional rules of criminal liability, in their current form, are inadequate for addressing incidents involving drones. In most cases, these rules fail to fully account for the legal complexities that arise, particularly regarding the relationship between the drone and its pilot, operator, or programmer. This issue has become increasingly difficult to justify in light of the rapid technological advancements and widespread deployment of such systems worldwide.

4.2. Legal Frameworks For Preventing Homicide Committed Through AI-Powered Unmanned Drones In Selected Arab States

Many countries have enacted regulations

governing drone operations, encompassing licensing requirements, operational controls, and user eligibility criteria. Despite these measures, drones continue to pose significant legal challenges. The potential harms they can inflict range from damaging property and endangering individuals to their deliberate use in targeted killings, making it essential to address these risks through robust legal mechanisms. In this context, the legal frameworks of Saudi Arabia, Egypt, and the United Arab Emirates approach this issue along two principal axes: first, the prohibition of operating AI-powered unmanned drones without prior authorization; and second, the imposition of deterrent penalties for homicide and related terrorist crimes.

Regarding the regulation of unmanned aircraft in the Kingdom of Saudi Arabia, no dedicated statute has been specifically enacted for this purpose. Instead, such operations are regulated under the Civil Aviation Law of 2005 and the Saudi Civil Aviation Regulations.

On 27 December 2018, the General Authority of Civil Aviation (GACA) issued a circular to unmanned aircraft system owners and operators concerning the Rules and Regulations Relating to Unmanned Aircraft Systems applicable within the Kingdom of Saudi Arabia - namely, the GACA Aviation Safety Regulations pertaining to Unmanned Aircraft Systems(GACA, 2018). These regulations include the following provisions:

- No person may own an unmanned aircraft system unless it is registered in accordance with the relevant regulations.
- No one may operate any unmanned aircraft system unless properly authorized under the regulations.
- Unmanned aircraft systems may operate only in authorised areas.
- A registration process for unmanned aircraft systems and the issuance of required authorizations are made available via the official GACA website.

Referring to the Saudi Civil Aviation Law, we find that it criminalizes the operation of an aircraft without a license, permit, or certificate, as Art. 165 stipulates: "Any person who operates any aircraft, company, agency, or any air operations subject to the provisions set forth in this Law without obtaining the necessary license, permit, or certificate from the Authority, or continues operation after suspension, withdrawal, or revocation of such license, permit, or certificate shall be subject to imprisonment for a period not exceeding one year and a fine not exceeding 100,000 riyals or to either penalty"(Saudi,

2005).

The Saudi Law of Combating Crimes of Terrorism and its Financing 2017 imposes deterrent penalties for terrorist crimes and homicide that may be committed by means of AI-Powered Unmanned Drones. Article 50/1 stipulates: "Any person who commits any of the crimes stipulated in this Law, which results in the death of one or more persons, shall be subject to the death penalty"(Saudi, 2017).

In Egypt, Law No. 216 of 2017 was enacted to regulate the use of automatically or wirelessly propelled aircraft (drones). The law establishes a comprehensive framework based on two integrated tracks: the first being preventive and regulatory, and the second punitive and deterrent. The law imposes a general prohibition on both natural and juristic persons from importing, manufacturing, assembling, circulating, possessing, trading in, or operating automatically or wirelessly propelled aircraft without first obtaining a permit from the competent authority, namely the Ministry of Defense. Any violation of this prohibition is punishable by imprisonment for a term of no less than one year and no more than seven years, and by a fine of not less than five thousand Egyptian pounds and not exceeding fifty thousand Egyptian pounds, or by either of these two penalties. The penalty shall be life imprisonment if any of the prohibited acts are committed for a terrorist purpose, and the death penalty if such an act results in the death of a person(Egypt, 2017).

In the United Arab Emirates, Federal Decree-Law No. 26 of 2022 Concerning the Regulation of the Civil Use of Unmanned Aircraft and Related Activities was promulgated to ensure the safe use of unmanned aircraft, safeguard the security and integrity of the national airspace, regulate and supervise aerial observation services, and mitigate operational risks associated with such systems. Art. 9 enumerates prohibited acts and provides that no person shall undertake any of the following activities without first obtaining the requisite licence or permit from the Authority, the competent authority, or the relevant government entity, as applicable: (1) piloting or operating an unmanned aircraft, assisting in its piloting, or conducting operation, monitoring, or any work related to its operating systems; (2) flying over restricted or prohibited areas; (3) installing or equipping an unmanned aircraft with cameras or any other devices or equipment used for photography or recording; and (4) modifying an unmanned aircraft, its components, or its systems in a manner that alters its registered functions or specification(UAE, 2022). As for the penalties prescribed for those who commit

any of the acts prohibited under Article 9 above, they are set out in Article 16 of the law, which provides that: "Anyone who commits any of the following shall be punished by a fine of not less than (50,000) fifty thousand dirhams and not more than (500,000) five hundred thousand dirhams, or by either of these two penalties:1) Conducting operational activities or operational tests prior to registering the unmanned aircraft with the Authority or the competent authority, as applicable, or after its registration has been cancelled; 2) Piloting or causing an unmanned aircraft to fly without a permit, or in a manner that endangers the lives or property of others"(UAE, 2022).

A review of Federal Decree-Law No. 26 of 2022 concerning the regulation of the civil use of unmanned aircraft in the United Arab Emirates indicates that the legislation primarily addresses technical and security matters. Notably, this law does not directly confront the use of unmanned aircraft by terrorist actors to strike civilian targets. It is also noteworthy that the UAE legislature did not prescribe a specific modality by which homicide must be committed; accordingly, murder may be effected by any means. Where a perpetrator intentionally employs a drone to target and kill victims-with the requisite intent to kill-such conduct constitutes intentional homicide.

Thus, it becomes clear that the legal frameworks in Saudi Arabia, Egypt, and the United Arab Emirates for preventing homicides perpetrated by AI-powered unmanned drones are founded on a dual-track approach. The first is preventive and regulatory, criminalizing the unauthorized operation of unmanned aircraft. The second is punitive and deterrent, rooted in counter-terrorism legislation that prescribes severe penalties, including capital punishment for drone-related terrorist offenses resulting in death.

5. CONCLUSION

This article examines the complex legal challenges involved in attributing Legal Liability for Homicide and Deaths Caused by AI-Powered Unmanned Drones in Saudi Arabia, Egypt, and the United Arab Emirates. The legal frameworks for preventing such homicides rest on a dual-track approach. The first track is preventive and regulatory, embodied in civil-aviation rules that criminalize the unauthorized operation of unmanned aircraft. The second track is punitive and deterrent, reflected in counter-terrorism legislation that prescribes severe penalties for drone-related terrorist offences.

The review of existing legislation also reveals a notable absence of explicit statutory provisions that criminalize the use of artificial intelligence in conducting such killings. Accordingly, recourse must be had to established criminal-law doctrines-such as premeditated intentional homicide or other forms of intentional killing-to determine liability, depending on the circumstances of each case. Attribution of responsibility in drone-enabled homicides is frequently problematic: the liable actor may be the human operator, the designer or programmer of the controlling software, or another participant in the operational chain. The imperfect and opaque nature of current AI technologies increases the likelihood of unintended harm and complicates the reconstruction of causal links and mens rea. Because comprehensive safeguards to protect humans against such attacks remain incomplete, the approach proposed in this article should be viewed as a provisional step toward legal accountability rather than a definitive solution.

As a concluding summary, the article sets out the following substantive contributions in relation to Legal Liability for Homicide and Deaths Caused by AI-Powered Unmanned Drones:

- International coordination: Advocate the development of a comprehensive international legal framework governing the use of drones and artificial intelligence through treaties and multilateral agreements that delineate applicable legal regimes and controls, establish a prohibition on lethal autonomous weapon systems, provide for internationally agreed deterrent penalties to prevent homicide committed through AI-powered unmanned drones, and ensure compliance with human rights and international humanitarian law.
- National legislation: Recommend that the Saudi legislature, following the example of Egyptian and Emirati lawmaking, enact national legislation to regulate the use of drones and AI-identifying authorised operators, specifying licensing conditions and procedures, defining legitimate uses, and prescribing clear criminal and civil sanctions for violations.
- Criminal-law and procedural reform: Propose amendments to substantive and procedural criminal law to keep pace with technological developments in drones and AI, including definitive provisions on offences, investigation and trial procedures, and precise mechanisms for attributing criminal responsibility to

natural and legal persons.
- Promoting responsible research and innovation: Encourage scientific research and technological innovation in drone and AI technologies for peaceful and humanitarian purposes by establishing dedicated research centres and allocating targeted funding, while integrating legal and ethical expertise into research and development processes.

Abbreviations:
- AI: Artificial intelligence
- GACA: General Authority of Civil Aviation, Saudi Arabia.
- SDAIA: Saudi Data and Artificial Intelligence Authority

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